Complete Summary

GUIDELINE TITLE

Enteral access devices: selection, insertion, and maintenance considerations. In: A.S.P.E.N. enteral nutrition practice recommendations.

BIBLIOGRAPHIC SOURCE(S)

Bankhead R, Boullata J, Brantley S, Corkins M, Guenter P, Krenitsky J, Lyman B, Metheny NA, Mueller C, Robbins S, Wessel J. Enteral access devices: selection, insertion, and maintenance considerations. In: A.S.P.E.N. enteral nutrition practice recommendations. JPEN J Parenter Enteral Nutr 2009 Mar-Apr;33(2):143-9. [65 references]

GUIDELINE STATUS

This is the current release of the guideline.

COMPLETE SUMMARY CONTENT

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SCOPE

DISEASE/CONDITION(S)

Conditions or disease states requiring enteral nutrition

GUIDELINE CATEGORY

Management

CLINICAL SPECIALTY

Family Practice
Gastroenterology
Geriatrics
Infectious Diseases
Internal Medicine
Nursing
Nutrition
Pediatrics
Pharmacology
Radiology

INTENDED USERS

Advanced Practice Nurses
Allied Health Personnel
Dietitians
Health Care Providers
Health Plans
Hospitals
Managed Care Organizations
Nurses
Pharmacists
Physician Assistants
Physicians
Speech-Language Pathologists
Utilization Management

GUIDELINE OBJECTIVE(S)

- To examine the available literature related to the ordering, preparation, delivery, and monitoring of enteral nutrition
- To establish evidence-based practice guidelines for the safe and effective use of enteral nutrition

TARGET POPULATION

Patients in need of enteral nutrition throughout the lifecycle and throughout all practice settings

INTERVENTIONS AND PRACTICES CONSIDERED

1. Selection and placement (gastric vs. small bowel) of optimal enteral access devices
2. Insertion of enteral access devices and radiographic confirmation
3. Detection of inadvertent placement
4. Maintenance of enteral devices
5. Management of long-term enteral access
6. Initiation of feedings after placement of a long-term enteral access device

MAJOR OUTCOMES CONSIDERED

- Complications associated with insertion and maintenance of enteral access devices
- Incidence of psychological stress
- Incidence of misplaced enteral access devices
- Incidence of access displacement
- Incidence of inappropriately used catheters
- Length of hospitalization
- Mortality

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Searches of Electronic Databases

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

PubMed was used to search and collect the literature. Search was limited to English language journals and abstracts were excluded. All types of literature including research, case reports, and review articles. Government, regulatory, and standard setting websites such as the United States (US) Food and Drug Administration (FDA), US Pharmacopeia, and The Joint Commission on Accreditation of Healthcare Organizations were also utilized. Search terms included enteral nutrition, tube feeding, enteral complications, enteral safety, water safety, medication administration, enteral access device, aspiration, misconnections, enteral microbial growth, infant formulas, medical foods, and enteral formulary.

NUMBER OF SOURCE DOCUMENTS

Not stated

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Expert Consensus
Weighting According to a Rating Scheme (Scheme Not Given)

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Not stated

METHODS USED TO ANALYZE THE EVIDENCE

Systematic Review

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

The literature and evidence were classified based on the Agency for Healthcare Research and Quality (AHRQ) method.

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Expert Consensus

DESCRIPTION OF METHODS USED TO FORMULATE THE RECOMMENDATIONS

American Society for Parenteral and Enteral Nutrition (A.S.P.E.N.) established the Enteral Nutrition Practice Recommendations Task Force to examine the available literature related to the ordering, preparation, delivery, and monitoring of enteral nutrition and to establish evidence- based practice guidelines. It was recognized from the onset that there was either an absence of research or the research was of limited strength to support many aspects surrounding the practice of administering enteral nutrition. Therefore, in addition to the existing literature, a consensus of expert opinion based on current knowledge and best practices was used to formulate these practice recommendations.

The strength of each practice recommendation was graded using a method consistent with the 2002 A.S.P.E.N. Guidelines for the Use of Parenteral and Enteral Nutrition in Adult and Pediatric Patients. The grading system was based on a modified version of the method used by the Agency for Healthcare Research and Quality (AHRQ), United States (US) Department of Health and Human Services. After review of the literature cited, the authors used the AHRQ criteria to classify the strength of the evidence supporting each recommendation statement.

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Grade of Recommendation

A. There is good research-based evidence to support the guideline (prospective, randomized trials).
B. There is fair research-based evidence to support the guideline (well-designed studies without randomization).
C. The guideline is based on expert opinion and editorial consensus.

COST ANALYSIS

Published cost analyses were reviewed.

METHOD OF GUIDELINE VALIDATION

Comparison with Guidelines from Other Groups
External Peer Review
Internal Peer Review

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

The draft document was sent to leaders of American Society for Parenteral and Enteral Nutrition (A.S.P.E.N.) Clinical Practice Sections, Clinical Practice Committee, and Board of Directors for review and comment process.

The draft document was also sent to leaders of related medical organizations. Reviews were received back from the following groups: American Society of Health-System Pharmacists (ASHP), Institute of Safe Medication Practices (ISMP), North American Society for Pediatric Hepatology, Gastroenterology, and Nutrition (NASPHGAN), American Academy of Pediatrics (AAP), Dietitians in Nutrition Support, a dietetic practice group of the American Dietetics Association, and U.S. Pharmacopeia (USP).

The document was approved by the A.S.P.E.N. Board of Directors following review by internal and external content experts and the A.S.P.E.N. Clinical Practice Committee.

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

Definitions of the grades of recommendations (**A-C**) are provided at the end of the "Major Recommendations" field.

Practice Recommendations

Selection of Enteral Access Devices

1. Select an enteral access device based on patient-specific factors. **(C)**
2. Nasojejunal route for enteral feedings in intensive care unit (ICU) patients are not required unless gastric feeding intolerance is present. **(A)**
3. Patients with persistent dysphagia should have a long-term enteral access device placed. **(B)**

Maintenance Considerations

1. Obtain radiographic confirmation that any blindly-placed tube (small-bore or large-bore) is properly positioned in the gastrointestinal (GI) tract prior to its initial use for administering feedings and medications in adult patients. **(B)**
2. When attempting to insert a feeding tube into the stomach of an adult patient, it may be helpful to use capnography to detect inadvertent entry of the tube into the trachea. Be aware that a radiograph is still needed before the tube is used for feedings. **(B)**
3. When attempting to insert a feeding tube into the small bowel, observe for a change in the pH and in the appearance of aspirates as the tube progresses from the stomach into the small bowel; use the findings to determine when a radiograph is likely to confirm small bowel placement. **(B)**
4. In adult patients, do not rely on the auscultatory method to differentiate between gastric and respiratory placement. The auscultatory method may be used as an adjunct method in the pediatric population. **(A)**
5. Do not rely on the auscultatory method to differentiate between gastric and small bowel placement. **(A)**
6. Mark the exit site of a feeding tube at the time of the initial radiograph; observe for a change in the external tube length during feedings. If a significant increase in the external length is observed, use other bedside tests

to help determine if the tube has become dislocated. If in doubt, obtain a radiograph to determine tube location. **(B)**
7. In pediatrics and neonates, all methods but X-ray verification of enteral tube placement have been shown to be inaccurate. X-ray use in children should be as judicious as possible given the radiation exposure. **(B)**

Long-Term Enteral Access

1. Long-term feeding devices should be considered when the need for enteral feeding is at least 4 weeks in adults, children, and infants after term age. **(C)**
2. Premature infants who do not have anomalies associated with inability to eat by mouth at the normal time for development of oral feeding skills should not have a long-term device considered before the usual age of development of independent oral feeding. **(C)**
3. Evaluation by a multidisciplinary team is indicated prior to insertion of a long-term feeding device to establish whether:
    a. Benefit outweighs the risk of access placement
    b. Insertion of feeding tubes near end of life is warranted
    c. Insertion of feeding tubes is indicated in the situation where patients are close to achieving oral feeding **(B)**
4. Abdominal imaging should be performed prior to permanent feeding device placement if a possible anatomic difficulty exists. **(C)**
5. Gastrostomy tube placement does not mandate fundoplication. The possible exception is children with neurological abnormalities who also have abnormal pH probe findings. **(B)**
6. Direct placement of a jejunostomy tube is indicated in patients requiring a long-term jejunostomy. **(B)**
7. Document tube type, tip location, and external markings in the medical record and in follow-up examinations. **(C)**
8. Avoid placement of catheters or tubes not intended for use as enteral feeding devices, such as urinary or GI drainage tubes which usually are without an external anchoring device. Use of such tubes leads to enteral misconnection as well as tube migration, which can potentially cause obstruction of the gastric pylorus or small bowel and aspiration. **(B)**

Initiation of Feedings after Placement of a Long-Term Enteral Access Device

1. Enteral feedings should be started postoperatively in surgical patients without waiting for flatus or a bowel movement. The current literature indicates that these feedings can be initiated within 24-48 hours. **(A)**
2. A percutaneous endoscopic gastrostomy (PEG) tube may be utilized for feedings within several hours of placement: current literature supports within 2 hours in adults and 6 hours in infants and children. **(B)**

Summary

The complexity of enteral nutrition (EN) feedings cannot be underestimated. All healthcare professionals should be vigilant in continuous surveillance of high risk practices, products and systems as they relate to the enterally fed patient. Recognition of ordering, administration, and monitoring steps of EN delivery which may increase risk of complications to the enterally fed patient is essential.

Definitions

Grade of Recommendation

A. There is good research-based evidence to support the guideline (prospective, randomized trials).
B. There is fair research-based evidence to support the guideline (well-designed studies without randomization).
C. The guideline is based on expert opinion and editorial consensus.

CLINICAL ALGORITHM(S)

None provided

EVIDENCE SUPPORTING THE RECOMMENDATIONS

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

The type of supporting evidence ranges from prospective randomized trials to expert opinion/consensus.

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

- Standardized processes for enteral nutrition care including ordering, preparation, administration, and monitoring
- Optimal care and minimal risk of error

POTENTIAL HARMS

The following specific complications are associated with enteral access devices:

- Anesthesia complications
- Radiation risk
- Malpositioning of device
- Diarrhea and constipation
- Tube obstruction
- Infection around tube site, peritonitis
- Leakage around the tube
- Problems with tube valve
- Esophageal reflux
- Buried Bumper Syndrome, the embedding of the internal retention device into the gastric mucosa resulting in pain, tube obstruction, peritonitis, and stoma site drainage
- Stresses brought about by tube feedings, including difficulty finding respite care, restriction of mobility, changed relationship with the child, and missing the taste of food
- Post-percutaneous endoscopic gastrostomy tube mortality

CONTRAINDICATIONS

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Enteral nutrition is contraindicated in a patient with significant hemodynamic compromise.

QUALIFYING STATEMENTS

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The American Society for Parenteral and Enteral Nutrition (A.S.P.E.N.) Enteral Nutrition Practice Recommendations are based upon general conclusions of health professionals who, in developing such recommendations, have balanced potential benefits to be derived from a particular mode of providing enteral nutrition with known associated risks of this therapy. The underlying judgment regarding the propriety of any specific practice recommendation or procedure shall be made by the attending health professional in light of all the circumstances presented by the individual patient and the needs and resources particular to the locality. These recommendations are not a substitute for the exercise of such judgment by the health professional, but rather are a tool to be used by the health professional in the exercise of such judgment. Use of this document is voluntary and should not be deemed inclusive of all proper methods of care or exclusive of methods of care reasonably directed toward obtaining the same result.

IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

An implementation strategy was not provided.

IMPLEMENTATION TOOLS

Chart Documentation/Checklists/Forms
Slide Presentation
Staff Training/Competency Material
Wall Poster

For information about availability, see the "Availability of Companion Documents" and "Patient Resources" fields below.

INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

IOM CARE NEED

End of Life Care
Getting Better
Living with Illness

IOM DOMAIN

Patient-centeredness
Safety

IDENTIFYING INFORMATION AND AVAILABILITY

BIBLIOGRAPHIC SOURCE(S)

Bankhead R, Boullata J, Brantley S, Corkins M, Guenter P, Krenitsky J, Lyman B, Metheny NA, Mueller C, Robbins S, Wessel J. Enteral access devices: selection, insertion, and maintenance considerations. In: A.S.P.E.N. enteral nutrition practice recommendations. JPEN J Parenter Enteral Nutr 2009 Mar-Apr;33(2):143-9. [65 references]

ADAPTATION

Not applicable: The guideline was not adapted from another source.

DATE RELEASED

2009 Jan

GUIDELINE DEVELOPER(S)

American Society for Parenteral and Enteral Nutrition - Professional Association

SOURCE(S) OF FUNDING

American Society for Parenteral and Enteral Nutrition (A.S.P.E.N.)

GUIDELINE COMMITTEE

The Enteral Nutrition Practice Recommendations Task Force

COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

Task Force Members: Robin Bankhead, CRNP, MS, CNSN, *Chair*; Joseph Boullata, PharmD, BCNSP; Susan Brantley, MS, RD, LDN, CNSD; Mark Corkins, MD, CNSP; Peggi Guenter, PhD, RN, CNSN; Joseph Krenitsky, MS, RD; Beth Lyman, RN, MSN; Norma A. Metheny, PhD, RN, FAAN; Charles Mueller, PhD, RD, CNSD; Sandra Robbins, RD, CSP, LD; Jacqueline Wessel, MEd, RD, CSP, CNSD, CLE

FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

Jacqueline Wessell is on the Abbot Nutrition Speakers Bureau. No other potential conflicts were reported.

ENDORSER(S)

American Dietetic Association - Professional Association
American Society of Health-System Pharmacists - Professional Association
Institute for Safe Medication Practices - Professional Association

GUIDELINE STATUS

This is the current release of the guideline.

GUIDELINE AVAILABILITY

Electronic copies: Available from the American Society for Parenteral & Enteral Nutrition (A.S.P.E.N.) Web site.

Print copies: Available in hardcopy from A.S.P.E.N. Telephone: 1-800-727-4567.

AVAILABILITY OF COMPANION DOCUMENTS

The following are available:

- Be A.L.E.R.T. and Be A.W.A.R.E. Enteral Safety Campaign Posters. Available from the American Society for Parenteral and Enteral Nutrition (A.S.P.E.N.) Web site
- A CD-ROM tutorial: writing parenteral nutrition (PN) orders. Available from the A.S.P.E.N. Web site.
- Slide teleseminars are available to members for purchase from the A.S.P.E.N. Web site.

In addition, the following forms are available in the original guideline document:

- Adult Enteral Nutrition Order Form
- Pediatric Enteral Nutrition Order Form
- Standard Enteral Nutrition Label Template (Adult Patient)
- Standard Human Breast Milk Label Template (Infant Patient)
- Human Breast Milk Storage Label

PATIENT RESOURCES

None available

NGC STATUS

This NGC summary was completed by ECRI Institute on February 5, 2010. The information was verified by the guideline developer on March 15, 2010.

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Date Modified: 4/5/2010